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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/501,791      | 07/02/2004  | Yoshifumi Kachi      | 039.0026            | 6914             |

29453 7590 11/20/2007  
Judge Patent Associates  
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Osaka-Shi, 530-0047  
JAPAN

EXAMINER

CHANDRA, SATISH

|          |              |
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| ART UNIT | PAPER NUMBER |
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1792

|           |               |
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| MAIL DATE | DELIVERY MODE |
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11/20/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/501,791

**Applicant(s)**

KACHI ET AL.

**Examiner**

Satish Chandra

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 - 14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/05, 7/04, 9/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application.
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/10/2007 has been entered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1 - 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuibira et al (Patent No. 6,508,884) in view of Ferguson (US 2003/0209534) and Aonuma et al (Patent No. JP02002252269).**

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an

invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

**Kuibira et al disclose:**

**Regarding claim 1**, a wafer holder (susceptor) 1 (Fig 5) containing at least one heater 11.

The cross sectional shape 11 (Fig 3) is shown as a rectangular whose lateral and bottom sides perpendicular to each other and having an angle of 90 degrees.

Kuibira et al further disclose: according to the manufacturing method of the present invention, by reviewing conditions of applying paste by printing that contains metal particles, the conductive layer can be formed to have the linear pattern with the line width and the line interval each of 5 mm or less (Column 5, lines 5 – 10).

**Regarding claims 2, 3**, the temperature distribution of the wafer in a film deposition process should be within 1% (Column 4, lines 66-67; Column 5, lines 1-2) when the line width and the line interval of the linear pattern of the conductive layer (Column 1, lines 57-60) are each 5 mm or less. And in order to achieve a temperature

distribution within 0.5%, the line width and the line interval of the linear pattern of the conductive layer should be 1 mm or less (Column 5, lines 3-4).

**Regarding claims 4, 8 and 9**, any one of aluminum nitride, aluminum oxide, silicon nitride and aluminum oxynitride (Column 5, lines 15-18) as base material for the wafer holder.

**Regarding claims 5 and 10**, the use of aluminum nitride for ceramic substrate having a high thermal conductivity of at least 100 W/m K (Column 5, lines 25-26).

**Regarding claims 6, 11**, using at least one metal from the group tungsten, molybdenum, silver, palladium, platinum, nickel or chromium (Column 5, lines 31,32) for forming the conductive layer.

**Regarding claim 7, 12-14**, using plasma electrode 12 (Fig 5) as a conductive layer (column 4, lines 5-6).

**Kuibira et al do not disclose:**

**Regarding claim 1**, conductive paste of viscosity selected so that as print-coated, the wiring lines take on a substantially trapezoidal form in cross-section.

**Ferguson discloses:**

Most conductive paste and inks contain many volatile solvents and other environmentally undesirable constituents that are used to adjust the rheology of the paste (Para 0012) wherein conductive pastes and inks are frequently used for resistive heating applications.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the rheology of the conductive paste (viscosity of the paste) for forming a desired pattern in the apparatus of Kuibira et al as taught by Ferguson.

The motivation for adjusting the rheology of the conductive paste (viscosity of the paste) for forming a desired pattern in the apparatus of Kuibira et al is to form desired patterns of heating elements in the apparatus of Kuibira et al.

**Kuibira et al and Ferguson do not disclose:**

The desired pattern of wiring lines is substantially in the shape of a trapezoid.

**Aonuma et al discloses:**

**Regarding claim 1**, a susceptor including a heating element 12 (Fig 2) embedded therein. The resistive heating element may be oval, capsular or rectangular and is not limited in its cross-sectional shape (Para 0024).

Therefore it would have been obvious to one of ordinary skill in the art to provide resistive heating elements of any shape including trapezoidal having inclined edges in the apparatus of Kuibira et al and Ferguson as taught by Aonuma et al.

It would have been obvious to one of ordinary skill in the art at the time of invention to make a conductive paste of viscosity selected to form a pattern of desired shape in the apparatus of Kuibira et al and Ferguson.

The motivation to provide a trapezoidal shaped heating element having inclined edges is to provide an alternate and equivalent heating element as taught by Aonuma et al. Further, it was held in *re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) that the

shape was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular shape was significant. (Also see MPEP 2144.04(d)).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1 - 14 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satish Chandra whose telephone number is 571-272-3769. The examiner can normally be reached on 8 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, Primary Examiner, Jeffrie R. Lund can be reached on 571-272-1437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Satish Chandra



Jeffrie R. Lund  
Primary Examiner

SC  
11/15/2007